

1       **We claim:**

2       1.   An apparatus, comprising:

3           a body;

4           a serial number associated with the body, the serial  
5           number having a plurality of order characters and a  
6           plurality of unique characters;

7           a plurality of machine-readable codes on the body, each  
8           encoding a portion of the serial number; and wherein

9           a first one of the codes encodes a first one of the  
10          order characters, a second one of the codes encodes a second  
11          one of the order characters, and the unique characters are  
12          divided among and encoded by the codes following said ones  
13          of the order characters.

14       2.   The apparatus of claim 1 wherein the codes are two-  
15       dimensional array codes.

16       3.   The apparatus of claim 1 wherein the serial number is  
17       also located on the body in human-readable form.

1        4.    The apparatus of claim 1 wherein the order characters  
2        and the unique characters are independently and sequentially  
3        divided among the codes.

4        5.    The apparatus of claim 1 wherein the body has an axis  
5        and the codes are located on the body about the axis.

6        6.    The apparatus of claim 1 wherein the codes are laser  
7        etched on the body.

8        7.    The apparatus of claim 1 wherein each of the codes  
9        comprises a 10x10 array of cells.

10       8.    The apparatus of claim 1 wherein the serial number has  
11       three order characters and six unique characters, and  
12       wherein there are three codes on the body, each encoding  
13       three, nonsequential characters of the serial number.

1 9. An apparatus, comprising:

2 a body;

3 a serial number associated with the body, the serial  
4 number having a plurality of order characters and a  
5 plurality of unique characters;

6 a plurality of machine-readable, two-dimensional array  
7 codes on the body, each encoding a portion of the serial  
8 number such that the entire serial number is encoded on the  
body; and wherein

9 a first one of the array codes encodes a first one of  
10 the order characters, a second one of the array codes  
11 encodes a second one of the order characters, a third one of  
12 the array codes encodes a third one of the order characters,  
13 and the unique characters are sequentially divided among and  
14 encoded by the array codes following said ones of the order  
15 characters.  
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17 10. The apparatus of claim 9 wherein the serial number is  
18 also located on the body in human-readable form.

19 11. The apparatus of claim 9 wherein the body has an axis  
20 and the array codes are equidistant from the axis.

1 12. The apparatus of claim 9 wherein the array codes are  
2 laser etched on the body.

3 13. The apparatus of claim 9 wherein each of the array  
4 codes comprises a 10x10 array of cells.

5 14. The apparatus of claim 9 wherein the serial number has  
6 three order characters and six unique characters, and  
wherein there are three array codes on the body, each  
encoding three, nonsequential characters of the serial  
number.

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13 15. A method for encoding the serial number of an  
apparatus, the serial number having a plurality of order  
characters and a plurality of unique characters, the method  
comprising:

14 (a) providing the apparatus with a plurality of machine-  
15 readable codes;

16 (b) encoding one of the order characters of the serial  
17 number with each of the codes; and then

1 (c) dividing and encoding the unique characters of the  
2 serial number among the codes following the order characters  
3 encoded in step (b).

4 16. The method of claim 15, further comprising the steps of  
5 reading the codes with a machine code reader and  
6 reconstructing the serial number to verify its accuracy.

17. The method of claim 15, further comprising the step of  
forming the serial number on the apparatus in human-readable  
code.

18. The method of claim 15 wherein steps (b) and (c)  
comprise independently and sequentially dividing the order  
characters and the unique characters among the codes.

13 19. The method of claim 15, further comprising the step of  
14 laser etching the codes on the apparatus.

15 20. The method of claim 15 wherein step (a) comprises  
16 providing three codes on the apparatus, each encoding three,  
17 nonsequential characters of the serial number.

1     21. A method for encoding the serial number of an  
2     apparatus, the serial number having a plurality of order  
3     characters and a plurality of unique characters, the method  
4     comprising:

5     (a) providing the apparatus with a plurality of machine-  
6     readable, two-dimensional array codes;

7     (b) sequentially encoding one of the order characters of  
8     the serial number with each of the array codes; and then

9     (c) sequentially dividing and encoding the unique  
10    characters of the serial number among the array codes  
11    following the order characters encoded in step (b).

12    22. The method of claim 21, further comprising the steps of  
13    reading the array codes with a machine code reader and  
14    reconstructing the serial number to verify its accuracy.

15    23. The method of claim 21, further comprising the step of  
16    forming the serial number on the apparatus in human-readable  
17    code.

18    24. The method of claim 21, further comprising the step of  
19    laser etching the array codes on the apparatus.

**Abstract.** The  $2n$ -th order linear differential equation  $y^{(2n)} + p_{2n-1}(x)y^{(2n-1)} + \dots + p_1(x)y' + p_0(x)y = 0$  is considered. The conditions for the existence of a nontrivial solution in the form of a polynomial of degree  $n$  are obtained. The conditions for the existence of a nontrivial solution in the form of a polynomial of degree  $n$  are obtained. The conditions for the existence of a nontrivial solution in the form of a polynomial of degree  $n$  are obtained.